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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/698,712	10/27/2000	Hong Heather Yu	9432-000122	5774
7590	09/02/2004		EXAMINER	
Harness Dickey & Pierce PLC P O Box 828 Bloomfield Hills, MI 48303			VAUGHAN, MICHAEL R	
			ART UNIT	PAPER NUMBER
			2131	

DATE MAILED: 09/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	09/698,712	YU ET AL.
	Examiner Michael R Vaughan	Art Unit 2131

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) Responsive to communication(s) filed on 19 May 2004.  
 2a) This action is **FINAL**.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) Claim(s) 1-25 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1-25 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | Paper No(s)/Mail Date. _____ .  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|  | 6) <input type="checkbox"/> Other: _____                                    |

**Detailed Office Action**

Claims 1-25 have been fully reconsidered in light of the remarks presented in the Applicant response filed 5-19-04 and are pending.

***Response to Amendment***

Claims 18, 22, 23, and 25 amendments warrant the withdrawal of the previous objections and 35 USC §112 rejections.

Claims 15 and 24 have been amended but the objection still applies. Examiner expressed in the previous office action that claims 15 and 24 are actually independent claims because they are both different method than the claimed method of claim 1. Examiner suggested adding the limitations of claim 1 into claims 15 and 24, which was done. However the language still exists in claims 15 and 24 that make them dependent claims, i.e. "according to claim 1". If this particular language were removed from the claims the objection would be withdrawn. However, additional fees would be required, as it would increase the number of independent claims by two.

The amendment to the specification, abstract, warrants the withdrawal of the previous objection.

***Response to Arguments***

Applicant's arguments filed 5-19-04 have been fully considered but they are not persuasive.

In response to applicant's argument that the references has different features than that of applicant's invention, it is noted that the features upon which applicant relies (i.e., data hiding) are not recited in the rejected claim(s).

Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). The applied reference, Wu, meets the language of the claimed invention. Applicant alleges that the Wu reference is different from the Applicant's invention. However, given the broadest reasonable interpretation of the language in the claims, Wu invention clearly reads on the claimed invention. Wu discloses a method for encoding digital data and a method of performing data reconstruction.

Applicant alleges that Wu "does not extract data used for the watermark from a first block for placing in a second block". Examiner respectfully disagrees and finds this teaching in Wu in section 2.1. Wu teaches mapping (embedding) signature information (secondary data) can be mapped from either one host component or a combination of host components to a secondary data value (embedding signature in second block). Given the broadest reasonable interpretation of the language in claim 1, Wu teachings anticipate the language presented in the claims.

Examiner would point out that Applicant did not explicitly agree a particular claim nor traversed the applied reference of Chan. Examiner has interpreted the argument presented as applied to claim 1 since there was no specific claim mentioned. Examiner maintains all previous art related rejections.

***Claim Rejections - 35 USC '102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-9, 11-14, 19-21, 23, and 25 are rejected under 35 U.S.C. 102(b) as being anticipated by Multi-level Data Hiding for Digital Image and Video (herein Wu).

As per claim 1, Wu teaches partitioning the digital data into a plurality of blocks;

extracting signature information from a first one of said blocks; selecting a second one of said blocks as a masking block; embedding said signature information of said first block in said masking block (see section 2.1).

As per claim 2, Wu teaches repeating said extracting, selecting and embedding steps for each of said plurality of blocks (section 2.1).

As per claim 3, Wu teaches repeating said extracting, selecting and embedding steps for each of said plurality of blocks such that each of said plurality of blocks serves as a masking block for one and only one other block (section 2.2.4).

As per claims 4, Wu teaches selecting step is performed by scanning said plurality of blocks using a predefined scanning pattern (section 2.2.3).

As per claim 5, Wu teaches expressing said plurality of blocks in a predetermined column and row format and wherein said scanning pattern traverses a diagonal zig-zag pattern across said column and row format (see figure 4).

As per claim 6, Wu teaches said extracted signature information is content-associative signature information (sections 2.2.1 and 2.3.1).

As per claim 7, Wu teaches said extracted signature information is generated by expressing said data in the frequency domain having corresponding frequency coefficients and by using a selected portion of said frequency coefficients to generate said signature information (section 2.2.2).

As per claim 8, Wu teaches embedding step is performed so as to minimize the perceptibility of said signature information within said masking block (section 2.2.2).

As per claim 9, Wu teaches embedding step is performed using a data hiding technique in which the least significant bits of the masking block are altered based on the signature information (section 2.2.2).

As per claim 11, Wu teaches step of selecting a masking block is performed using a circular selection strategy whereby said first block both provides signature information to and receives signature information from a linked list of blocks containing at least one third block (column 2.2.4).

As per claim 12, Wu teaches the step of selecting a masking block is performed using a random selection strategy whereby said first block and said second block are selected by a random shuffle algorithm (section 2.2.4).

As per claim 13, Wu teaches embedding step is performed using a nonlinear embedding strategy whereby the amount of signature information stored in a given block is controlled based on the data content of that block (section 2.3.1).

As per claim 14, Wu teaches embedding step is performed using a nonlinear embedding strategy whereby said plurality of blocks are classified according to a predetermined set of block types and wherein the amount of signature information stored in a given block is controlled based on the given block's block type (sections 2.2.4 and 2.3.1).

As per claim 19, Wu teaches a memory for partitioning said digital data into a plurality of blocks including a first block and a second block; a processor for extracting signature information from a first one of said 5 blocks and embedding said signature information in said second block (see sections 1, 2.1, and the results which were simulated on a computer).

As per claim 20, Wu teaches said processor employs a data hiding algorithm to embed said signature information into said second block (section 2.1).

As per claim 21, Wu teaches memory stores said digital data expressed in the frequency domain with corresponding frequency coefficients and wherein

said data processor includes an extraction algorithm that uses a selected portion of said frequency coefficients to generate said signature information (section 2.2.2).

As per claim 23, Wu teaches said processor accesses said memory to define said first and second blocks in a circular strategy whereby said first block both provides signature information to and receives signature information from a linked list of blocks containing at least one third block all defined in said memory (section 2.2.4).

As per claim 25, Wu teaches a partition of digital data defining a plurality of blocks; a signature information component extracted from a first one of said blocks and embedded in a second one of said blocks (section 2.1).

Claims 15-17 are rejected under 35 U.S.C. 102(b) as being anticipated by Block Shuffling and Adaptive Interleaving for Still Image Transmission Over Rayleigh Fading Channels (herein Chan).

As per claim 15, Chan teaches examining said one of said blocks to detect if an error condition exists in that block, upon detection of an error condition, accessing said second block to retrieve the signature information of said first

block, and using said retrieved signature information to make repairs to said first block (see Introduction section, I.).

As per claim 16, Chan teaches comprising identifying additional blocks in a neighborhood associated with said first block and using said additional blocks along with said retrieved signature information to make repairs to said first block (see section II.D, Error Concealment).

As per claim 17, Chan teaches a multidirectional interpolation process is performed on said additional blocks to make repairs to said first block (see section II.D, Error Concealment).

### ***Claim Rejections - 35 USC ' 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.

Patentability shall not be negated by the manner in which the invention was made.

11. Claims 10, 15, 18, 22, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wu in view of Chan.

As per claims 10 and 22, Wu fails to explicitly teach the step of selecting a masking block is performed by expressing said plurality of blocks geometrically and by maximizing the distance between said first and second blocks. Chan does teach the step of selecting a masking block is performed by expressing said plurality of blocks geometrically and by maximizing the distance between said first and second blocks (see section II. A, Block Shuffling Algorithm). Chan teaches that maximizing the distance between the first and second block decreases the likelihood of both block having an error. Therefore, this increases the chance to repair the error of a block.

In view of this, it would have been obvious to one of ordinary skill in the art at the time the invention was made to employ the teaching of Chan within the system of Wu because it would increase the possibility of error recovery. One skilled in the art would have been motivated to generate the claimed invention with a reasonable expectation of success.

Claims 15 and 24, are also rejected under 35 USC 103(a) if they rewritten to include all the limitations of claim 1 or if put into dependent form. Wu fails to

teach partitioning the digital data into a plurality of blocks, extracting signature information from a first one of said blocks; selecting a second one of said blocks as a masking block, and embedding said signature information of said first block in said masking block (see section 2.1) but fails to teach examining said one of said blocks to detect if an error condition exists in that block, upon detection of an error condition, accessing said second block to retrieve the signature information of said first block, and using said retrieved signature information to make repairs to said first block.

Chan teaches examining said one of said blocks to detect if an error condition exists in that block, upon detection of an error condition, accessing said second block to retrieve the signature information of said first block, and using said retrieved signature information to make repairs to said first block (see Introduction section, I.). It would be advantageous to be able to recover the signature information in case of an error in transmission so that ownership can still be proved.

In view of this, it would have been obvious to one of ordinary skill in the art at the time the invention was made to employ the teaching of Chan within the system of Wu because it would allow the signatory information to be recovered even if some data is loss during transmission. One skilled in the art would have been motivated to generate the claimed invention with a reasonable expectation of success.

As per claim 18, Wu fails to teach identifying additional blocks in a neighborhood associated with said first block; extracting edge signature information from said additional blocks; and using said extracted edge information in generating said signature information. Chan teaches identifying additional blocks in a neighborhood associated with said first block; extracting edge signature information from said additional blocks; and using said extracted edge information in generating said signature information (see section II.D, Error Concealment). Chan teaches that knowledge of edge information can help minimize the blocking effects after error concealment. Therefore, the likelihood of recovering the hidden data is greater.

In view of this, it would have been obvious to one of ordinary skill in the art at the time the invention was made to employ the teaching of Chan within the system of Wu because it would allow the signatory information to be recovered even if some data is loss during transmission. One skilled in the art would have been motivated to generate the claimed invention with a reasonable expectation of success.

***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael R Vaughan whose telephone number is 703-305-0354. The examiner can normally be reached on M-F 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ayaz Sheikh can be reached on 703-305-9648. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2131

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Michael R Vaughan  
Examiner  
Art Unit 2131

MV



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